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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,340	08/12/2005	Jean-Marc Suau	264369US0PCT	6461

22850 7590 09/25/2006

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EXAMINER
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BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/522,340	SUAU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Michael Bernshteyn	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 10 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant's election with traverse of Group I, claims 1-8 and 11-24 in the reply filed on July 10, 2006 is acknowledged. The traversal is on the ground(s) that the Examiner has not provided sufficient reason and/or example to support any conclusion that the claims of the restricted groups are patently distinct. Product and process for making said product are interdependent and should be examined together on the merits (page 2). Applicants contend that in the instant application claims 1-8 and 11-24 are directed to a process and claims 9-10 are directed to a composition (page 3).

This is not found persuasive because in the instant case a process for controlled radical homopolymerization (claims 1-8) and a polymer of acrylic acid and of its salts obtained by the process according to claim 1 (claims 11-24) were combined together in Group I while a completely different invention – a hydrosoluble transfer agent (claims 9 and 10) was included in Group II. These two groups of invention have different functions and different effect and can be used completely independably.

It is noted that the examination of the combined set of claims of Group I-II would impose an undue burden on the Examiner.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 9 and 10 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group II, there being no allowable generic or linking claim.

3. Claims 1-8 and 11-24 are active.

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***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

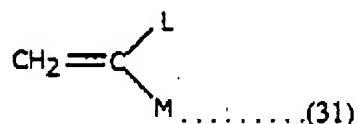
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 9-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over J. Chiefair et al. (WO 99/31144).

With regard to the limitations of instant claims 9-24, Chiefair discloses a free radical polymerization process for synthesizing polymers. The process utilizes sulfur based chain transfer agents and is widely compatible over a range of monomers and reaction conditions. The process produces novel **polymers having low polydispersity** and predictable specific polymer architecture and molecular weight. The polymers are suitable for use as binders in automobile OEM and refinish coating (abstract).

Chiefair discloses that a monomer mix suitable for use may include at least one vinyl monomer of the formula (31) below:



where L is selected from the group consisting of hydrogen, halogen, and substituted or unsubstituted C<sub>1</sub>-C<sub>4</sub> alkyl substituents being independently selected from the group consisting of OH, OR", CO<sub>2</sub>H, O<sub>2</sub>CR", CO<sub>2</sub>R" and a combination thereof;

where M is selected from the group consisting of hydrogen, R", CO<sub>2</sub>R", COR", CN, CONH<sub>2</sub>, CONHR", CONR"<sub>2</sub>, O<sub>2</sub>CR", OR", and halogen.

R" is selected from the group consisting of substituted or unsubstituted alkyl, alkenyl, aryl, heterocyclyl, aralkyl, alkaryl, and a combination thereof (page 13, lines 5-8, page 19, lines 18-28).

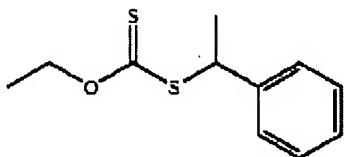
Depending upon the type of polymer desired, the monomer mix may also include the following monomers: maleic anhydride; N-alkylmaleimide, N-arylmaleimide, dialkyl fumarate, cyclopolymerizable or ring opening monomer, or a combination thereof. The monomer mix may also include **macromonomers**, which are compounds of the formula (31) where L or M is a **polymer chain**.

The monomers or comonomers of the formula (31) generally include one or more of acrylate and methacrylate esters, **acrylic and methacrylic acids**, styrene, acrylamide, methacrylamide, acrylonitrile, methacrylonitrile, vinyl esters and mixtures of these monomers, and mixtures of these monomers with other monomers (page 19, line 35 through page 20, line 3).

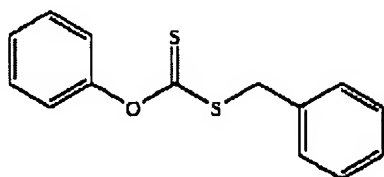
Chiefair discloses that one of the significant advantages of the process is that the low polydispersity of the polymer in the range of 1.05 to 1.3 can be maintained even at high monomer conversions in the range from 10% to 100% (page 24, lines 3-6).

Chiefair discloses a lot of chain transfer agents, which are substantially identical to the claimed invention. Some of them were exemplified by the Applicant, such as compound C (example 1, test 2, pages 15-16, [0185]); compound F (example 1, test 4, page 16, [0193]); compounds M, N and P (example 1, test 7, [0206]).

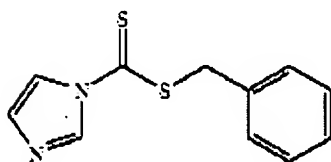
Compound C



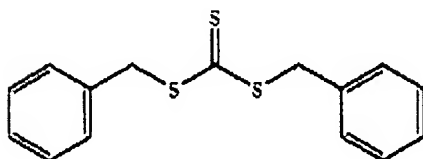
Compound F



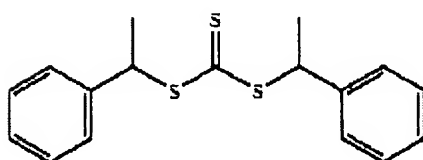
Compound M



Compound N



Compound P



Chiefair discloses that the amount of chain transfer agents, index polydispersity and molecular weight of the obtained polymers are within the claimed ranges in the most examples (examples 15-52, pages 45-62).

It is the examiner position to believe that polymers characterized by exactly the same polymerized monomers (acrylic acid and/or water-soluble monomers), the same chain transfer agents and its amount, the same azo-compounds as initiators and its amount, the same parameters of free radical polymerization and sequence of processing steps, the characteristics of the obtained polymers (index polydispersity and molecular weight) in WO'144 (Examples 15-52, pages 45-62) would be substantially identical to the instant claimed polymers of acrylic acid and its salts or copolymerization

of acrylic acid with one or more water-soluble monomers, even though obtained by a different process, consult *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Since the USPTO does not have proper equipment to do the analytical test, the burden is now shifted to the applicant to prove otherwise.

With regard to the limitations of instant claim 18, Chiefair discloses that these polymers have wide applicability in the field of free radical polymerization and can be used in the compositions for coating, including automobile OEM and refinishes, as primers, stabilizers, flow agents toughening agents, **fillers**, durability agents, corrosion and oxidation inhibitors, rheology control agents, metallic and other additives. Block, star and branched polymers can be used as compatibilizers, thermoplastic elastomers, dispersing agents, flocculants, surfactants, rheology control agents or as additives to modify the surface properties of bulk polymers and plastics. Additional applications for the polymers are in the fields of imaging, electronics (e.g., photoresists), engineering plastics, adhesives, sealants, paper coating, printing inks, etc. (page 33, line 20 through page 34, line 2).

5. Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiefair in view of Ravet et al. (U. S. Patent 4,842,651).

The disclosure of Chiefair's reference resided in § 4 is incorporated herein by reference.

With regard to the limitations of instant claims 19-24, Cheifair does not discloses an aqueous suspension of mineral fillers which contains said polymer, and the mineral



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filler is chosen from a specific group, and that the aqueous suspension of mineral fillers can be used in manufactured and coated paper, a paint formulation and a drilling mud

Ravet discloses that the use of mineral materials such as carbonate, calcium silicate and sulfate as well as titanium dioxide, talc and kaolin for preparing industrial products intended for use in areas of painting, paper coating, fillers for rubber and synthetic resins, etc., has been known for a long time. The pre-treatment agent according to the invention is introduced into state (a) at the rate of 0.05 to 1.0% by weight of active matter with relation to the dry weight of the rough mineral materials to be conditioned, which is within the claimed range (col. 5, lines 36-40). Ravet discloses a method of coating paper, comprising applying to said paper a coating of the fluid aqueous suspension and grinding or abrading said collected fluid aqueous suspension (Claims 13 and 15, col. 18, lines 36-38 and 44-46).

Both references are analogous art and belong to the same field of endeavor concerning a method for the homopolymerization of acrylic acid and its salt or copolymerization of acrylic acid with one or more water-soluble monomers, and using the final polymer for different applications.

Therefore it would have been obvious to one having ordinary skill in the art when the invention was made to incorporate the polymer of acrylic acid and its salts obtained by using of chain transfer agent, as pre-treatment agent in the amount of 0.05-1% by weight as taught by Chiefair in an aqueous suspension of mineral fillers such as carbonate, titanium dioxide, talc, kaolin, etc. for preparing industrial products intended for use in areas of painting, paper coating, etc. as taught by Ravet, in order to be able to

improve the paper's size stability, drying conditions and, especially, the physical properties of the layer laid on the substrate (US'651, col. 1, lines 49-52), and thus to arrive the subject matter of instant claim 27 and dependable claims 28-31.

### ***Allowable Subject Matter***

6. Claims 1-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: J. Chiefair et al. (WO 99/31144).

J. Chiefair et al. discloses a free radical polymerization process for synthesizing polymers. The process utilizes sulfur based chain transfer agents and is widely compatible over a range of monomers and reaction conditions. The process produces polymers having low polydispersity and predictable specific polymer architecture and molecular weight. The polymers are suitable for use as binders in automobile OEM and refinish coating (abstract).

Chiefair does not disclose or fairly suggest the a process for controlled radical polymerization, wherein said process comprises two stages, the first of which is synthesizing "in situ" an hydrosoluble transfer agent used in the second stage of polymerization.

### ***Conclusion***

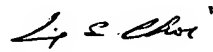
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn  
Patent Examiner  
Art Unit 1713

MB  
09/18/2006

  
LING-SUI CHOI  
PRIMARY EXAMINER